

### **REMARKS**

This Application has been carefully reviewed in light of the Office Action mailed January 11, 2006 (the "Office Action"). At the time of the Office Action, Claims 1-25 were pending in the Application. In the Office Action, the Examiner rejects Claims 1-4, 10, and 14-25; and objects to Claims 5-9 and 11-13. Applicants amend Claims 1, 10, and 14. As described below, Applicants believe all claims to be allowable over the cited references. Therefore, Applicants respectfully request reconsideration and full allowance of all pending claims.

### **Allowable Subject Matter**

Applicants note with appreciation the Examiner's indication that Claims 5-9, 11-13, and 23 would be allowable if rewritten in independent form including all of the features of the base claim and any intervening claims. However, as discussed below, Applicants believe that independent Claims 1, 10, and 21 (from which Claims 5-9, 11-13, and 23 depend, respectively) are also allowable. Therefore, Applicants have not amended Claims 5-9, 11-13, and 23.

### **Section 102 Rejections**

The Examiner rejects Claims 1-3, 10, 14, 19, and 21 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,014,367 issued to Joffe ("*Joffe*"). Applicants note with appreciation the Examiner's indication that Applicants previous arguments relating to *Joffe* were persuasive. Because Applicants believe that *Joffe* does not disclose, teach, or suggest each and every limitation of Applicants' claims (even in view of the new grounds of rejection), Applicants respectfully traverse the new rejection of Claims 1-3, 10, 14, 19 and 21 for the reasons stated below.

For example, Applicants continue to submit that *Joffe* does not disclose, teach, or suggest "the interface controller operable to . . . allocate a disparate portion of port transmission slots to each of the transmission line interfaces coupled to the port based on hierarchical levels assigned to each port transmission slot," as recited in Claim 1. In the current Office Action mailed January 11, 2006, the Examiner relies upon Figure 10 of *Joffe* and states that "[t]he slots are hierarchical" since "slots [are] assigned to ports first and then

divided among VCs.” (Office Action, page 2). Applicants respectfully disagree. *Joffe*’s Figure 10 merely illustrates how “several lower bandwidth channels may be multiplexed onto a single, higher bandwidth channel by using multiple schedulers.” (Column 4, lines 51-53). To perform such a function, FIGURE 10 of *Joffe* illustrates the schedulers placed in series. Specifically, Figure 10 illustrates a first scheduler 120 that “is used to subdivide bandwidth among several low bandwidth channels.” (Column 4, lines 53-55). A second scheduler 122 “is used to assign the appropriate bandwidth to each channel’s VCs.” (Column 4, lines 55-56). Thus, the arrow of the “sub-port” that is received by scheduler B merely represents a low bandwidth channel. Scheduler B 122 then allocates bandwidth within the low bandwidth channel to that channel’s VCs. (FIGURE 10). Again, *Joffe* merely describes the cumulative use of schedulers on a low bandwidth channel (that includes virtual channels). Similar to FIGURE 11, which Applicants argued in the previous Response to Office Action, Applicants respectfully submit that neither FIGURE 10 nor its corresponding description indicate that bandwidth is allocated “based on hierarchical levels assigned to each port transmission slot,” as recited in Applicants’ Claim 1.

To the contrary, and with respect to the scheduling of ATM cells, *Joffe* discloses that “[e]ach VC 24 has a weight, which is used to determine the portion of the available bandwidth assigned to that VC.” (Column 2, lines 17-19). There is no indication, however, that the available bandwidths assigned to each VC are based on hierarchical levels. Likewise, the use of scaling coefficients also do not indicate the allocation of bandwidth based on assigned hierarchical levels. *Joffe* provides that “a scaling co-efficient 5 is defined equal to the maximum weight divided by the maximum burst allowed.” (Column 2, lines 19-21). “The scaling co-efficient is used to regulate the duration of individual bursts independent from the weight of the VCs.” (Column 2, lines 21-23). Thus, the objective of the scheduler of *Joffe* is merely to “[spread] out the burst of each VC to achieve the speeds required for fast ATM scheduling, significantly improving network performance.” (Column 1, lines 39-44). *Joffe* does not disclose, however, “the interface controller operable to . . . allocate a disparate portion of port transmission slots to each of the transmission line interfaces coupled to the port based on hierarchical levels assigned to each port transmission slot,” as recited in Claim 1.

As another example of the deficiencies of *Joffe* with respect to Applicants' claims, Applicants respectfully submit that *Joffe* does not disclose, teach, or suggest "the interface controller operable to selectively and simultaneously couple at least two of the plurality of transmission line interfaces to the port and to allocate a disparate portion of port transmission slots to each of the transmission line interfaces coupled to the port . . . ," as also recited in Applicants' Claim 1. As summarized above, *Joffe* discloses that "[e]ach VC 24 has a weight, which is used to determine the portion of the available bandwidth assigned to that VC." (Column 2, lines 17-19). According to *Joffe*, FIGURES 3A-4C "illustrate an example of the functioning of the scheduling operation." (Column 3, lines 5-6). In the particular example, four VCs, vc-1 32, vc-2 34, vc-3 36, and vc-4 38, are assigned respective weights of 3, 5, 2, and 2. (Column 3, lines 7-13). The scaling coefficient is 2. (Column 3, line 13.) "Thus, vc-1 has a burst of 1 cell, vc-2 has a burst of 2 cells, vc-3 has a burst of 1 cell and vc-4 has a burst of 2 cells." (Column 3, lines 16-17). The operation of scheduling is performed as follows:

As shown in FIG. 3A, vc-1 32, vc-2 34, vc-3 36 and vc-4 38 are initially placed in active queue 30, while wait queue 40 is empty. Vc-1 32 is then serviced and a single vc-1 cell 44 is transmitted on transmission line 42. A counter on vc-1 32 is decreased by one to indicate that one cell of vc-1 32 has been transmitted. As the value of the vc-1 counter is greater than zero ( $3-1=2$ ), vc-1 32 remains on the active queue 30 and vc-2 34 is serviced. Two vc-2 cells 46 are transmitted on transmission line 42 and the vc-2 counter is decreased by two. As the value of the vc-2 cells 46 are transmitted on transmission line 42 and the vc-2 counter is greater than zero ( $5-2=3$ ), vc-2 34 remains on the active queue 30 and vc-3 36 is serviced. A single vc-3 cell 48 is transmitted on transmission line 42 and the vc-3 counter is equal to 0 ( $1-1=0$ ), vc-3 36 is transferred to the wait queue 40, as shown in FIG. 3B. Finally, vc-4 38 is serviced and a single vc-4 entry 50 is transmitted on transmission line 42. As the value of the vc-4 counter is greater than zero ( $2-1=1$ ), vc-4 remains on the active queue 30, thus concluding the first round of scheduling.

(Column 3, lines 19-38). Thus, as demonstrated by *Joffe*, the transmissions via the four VCs are sequential such that each VC is transmitted individually and in turn. Accordingly, Applicants submit that *Joffe* does not disclose, teach, or suggest "the interface controller operable to selectively and simultaneously couple at least two of the plurality of transmission

line interfaces to the port and to allocate a disparate portion of port transmission slots to each of the transmission line interfaces coupled to the port . . . ,” as recited in Applicants’ Claim 1.

Independent Claims 10 and 14 recite certain features that are analogous to those discussed above. For example, Claim 10 recites “an interface controller stored in the storage medium, the interface controller operable to selectively and simultaneously couple at least two of the plurality of transmission line interfaces to the port and to allocate a disparate portion of port transmission slots to each of the transmission line interfaces coupled to the port based on hierarchical levels assigned to each port transmission slot.” As another example, Claim 14 recites “simultaneously coupling a plurality of schedulers to a port for a transmission line” and “using each of the schedulers to transmit, in a portion of port transmission slots allocated to the scheduler, traffic designating a virtual tunnel defined by the portion of port transmission slots based on hierarchical levels assigned to each port transmission slot.” Accordingly, for reasons similar to those discussed above, Applicants respectfully submit that *Joffe* does not disclose, teach, or suggest each and every limitation of Applicants’ Claims 10 and 14.

With respect to independent Claim 21, Applicants noted in the Office Action mailed on August 22, 2005, that Office Action’s failure to identify specifically where *Joffe* discloses the following operations: (1) “receiving a request to transmit specified traffic in a virtual tunnel having a bandwidth” and (2) “identifying an hierarchical set of port transmission slots providing at least the bandwidth.” Specifically, Applicants argued that by summarily rejecting Claim 21 with Claims 1, 10, and 14, the Office Action provided Applicants with no understanding of the Examiner’s rationale for applying the disclosure of *Joffe* to render the above-recited features and operations anticipated. Because Applicants believe that the subsequent Office Action mailed on January 11, 2006 is also deficient for the same reasons, Applicants reiterate these arguments now.

Specifically, Applicants respectfully submit that the Examiner is not giving credence to each element of Claim 21. The M.P.E.P. provides that “[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.” M.P.E.P. § 2143.03 (citing *In re Wilson*, 424 F.2d 1382, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970)).

Because the Examiner has not shown where *Joffe* discloses, teaches, or suggests “receiving a request to transmit specified traffic in a virtual tunnel having a bandwidth” or “identifying an hierarchical set of port transmission slots providing at least the bandwidth,” Applicants submit that at least the rejection of Claim 21 is improper and should be withdrawn.

Additionally, Applicants respectfully submit that the recited claim elements are absent from the disclosure of *Joffe*. As summarized above, *Joffe* merely discloses a scheduler that “can precisely pace virtual channel (VC) traffic by an assigned weight which defines the available bandwidth to be allocated to that VC.” (Abstract). “The method provides a minimum service rate to each virtual channel on a small, selected time scale, and requires only a small bounded amount of work per physical connection, independent of the number of VCs.” (Abstract). With respect to incoming traffic, *Joffe* discloses that only that traffic is queued and that each virtual channel is transmitted individually in sequential rounds of scheduling. (See the above arguments with respect to Claims 1, 10 and 14; See also *Joffe*, Column 3, lines 5-45). There is no disclosure in *Joffe*, however, of “receiving a request to transmit specified traffic in a virtual tunnel having a bandwidth” and “identifying an hierarchical set of port transmission slots providing at least the bandwidth,” as recited in Claim 21.

For at least these reasons, Applicants respectfully request reconsideration and allowance of Claims 1, 10, 14, and 21, together with the claims that depend from Claims 1, 10, 14, and 21.

### **Section 103 Rejections**

The Examiner rejects Claims 4, 15-18, 20, 22, and 24-25 under 35 U.S.C. § 103(a) as being unpatentable over various combinations of *Joffe* with U.S. Patent No. 6,633,561 issued to Christie (“*Christie*”) and U.S. Patent No. 5,850,399 issued to Ganmukhi et al. (“*Ganmukhi*”). Applicants respectfully traverse these rejections for the reasons stated below.

Claim 4 is dependent from Claim 1 and incorporates the limitations thereof. Claims 15-18 and 20 are dependent from Claim 14 and incorporate the limitations thereof. Claims 22 and 24-25 are dependent from Claim 21 and incorporate the limitations thereof. Because

Applicants have shown Claims 1, 10, 14, and 21 to be allowable above, Applicants have not provided detailed arguments with respect to Claims 4, 15-18, 20, 22, and 24-25. However, Applicants remain ready to do so if it becomes appropriate. For at least this reason, Applicants respectfully request reconsideration and allowance of Claims 4, 15-18, 20, 22, and 24-25.

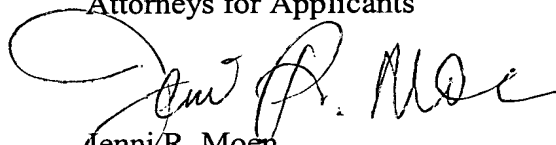
**CONCLUSION**

Applicants have made an earnest attempt to place this case in condition for allowance. For the foregoing reasons, and for other reasons clearly apparent, Applicants respectfully request full allowance of all pending Claims.

If the Examiner feels that a telephone conference or an interview would advance prosecution of this Application in any manner, the undersigned attorney for Applicants stands ready to conduct such a conference at the convenience of the Examiner.

Applicants believe no fee is due. However, should there be a fee discrepancy, the Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,  
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